Claims 1-84 are believed to be clearly patentable over the art relied on in the Office Action of July 3, 2001, for the reasons set forth in the Remarks section of the Amendment And Petition For Extension Of Time filed on November 5, 2001.

Added independent Claim 85 recites a flat display apparatus comprising first and second substrates supported in opposition to each other, wherein a spacer having a predetermined height exists between the first and second substrates, a periphery of opposing sections of the first and second substrates are hermetically sealed to form a hermetic flat space between the first and second substrates, and an electron-emitting section is disposed at a side of the first substrate. A phosphor plane is disposed at a side of said second substrate, and an electron derived from the electron-emitting section is accelerated and irradiates onto the phosphor plane to cause an excited light emission from the phosphor plane, thereby performing a desired light emission displaying. A surface of the spacer includes a fine unevenness.

Applicants respectfully submit that none of the references relied on in the Office Action is seen to teach or suggest a flat display apparatus having features as recited in Claim 85, including a spacer having a predetermined height exists between first and second substrates, wherein a surface of the spacer includes a fine unevenness. Accordingly, Claim 85 is believed to be clearly patentable over those references.

Added Claims 86-92 are each dependent from Claim 85 discussed above, and also are believed to be patentable for the same reasons as is Claim 85. Since each of those dependent claims is also deemed to define an additional aspect of the invention, however, the individual consideration of the patentability of each on its own merits is respectfully requested.

Applicants respectfully request favorable consideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

Frank Venezia

Attorney for Applicants

Registration No. 42,476

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
222430v1

Application No. 09/413,774
Attorney Docket No. 35.C14055

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

43. (Amended) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein the value of the incident angle multiplication coefficient $\underline{m_0}$ of secondary electron emission coefficient [m_0], which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1 - \left\{1 - \dfrac{m_0 \cos\theta}{1 + (m_1)^{-1} \times (m_0 \cos\theta)^{m_2}}\right\} \exp(-m_0 \cos\theta)}{1 - \left\{1 - \dfrac{m_0}{1 + (m_1)^{-1} \times m_0^{\ m_2}}\right\} \exp(-m_0)} \times \frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less, when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 k eV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 k eV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1),

provided that the second electron emission coefficient of the surface of said first member has two incident energies which satisfy the second electron emission coefficient δ = 1 under the vertical incident conditions, and that when the larger energy of the

above two energies satisfying $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are 0 and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry being arranged at least in two directions on the surface.

44. (Amended) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein the value of the incident angle multiplication coefficient $\underline{m_0}$ of secondary electron emission coefficient [m_0], which is a parameter of the following formula:

$$\frac{\delta_0}{\delta_0} = \frac{1 - \left\{1 - \dfrac{m_0 \cos\theta}{1 + \left(m_1\right)^{-1} \times \left(m_0 \cos\theta\right)^{m_2}}\right\} \exp\left(-m_0 \cos\theta\right)}{1 - \left\{1 - \dfrac{m_0}{1 + \left(m_1\right)^{-1} \times m_0^{\,m_2}}\right\} \exp\left(-m_0\right)} \times \frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 k eV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 k eV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1),

provided that the second electron emission coefficient of the surface of said first member has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of the above two energies satisfying $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_0, δ_0, respectively, and

m_1, m_2, have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the amplitudes of at least two kinds of unevenness.

45. (Amended) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein the value of the incident angle multiplication coefficient $\underline{m_0}$ of secondary electron emission coefficient [m_0], which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1 - \left\{1 - \dfrac{m_0 \cos\theta}{1 + (m_1)^{-1} \times (m_0 \cos\theta)^{m_2}}\right\} \exp(-m_0 \cos\theta)}{1 - \left\{1 - \dfrac{m_0}{1 + (m_1)^{-1} \times m_0^{\,m_2}}\right\} \exp(-m_0)} \times \frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 k eV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 k eV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1),

provided that the second electron emission coefficient of the surface of said first member has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of the above two energies satisfying $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the cycles periods of at least two kinds of unevenness.

46. (Amended) A spacer, wherein the value of the incident angle multiplication coefficient $\underline{m}_0$ of secondary electron emission coefficient [m_0], which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1-\left\{1-\dfrac{m_0\cos\theta}{1+\left(m_1\right)^{-1}\times\left(m_0\cos\theta\right)^{m_2}}\right\}\exp\left(-m_0\cos\theta\right)}{1-\left\{1-\dfrac{m_0}{1+\left(m_1\right)^{-1}\times m_0^{\,m_2}}\right\}\exp\left(-m_0\right)}\times\frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 k eV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 k eV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1), provided that the second electron emission coefficient of its surface has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of said two energies satisfying said condition $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry being arranged at least in two directions on the surface.

47. (Amended) A spacer, wherein the value of the incident angle multiplication coefficient $\underline{m}_0$ of secondary electron emission coefficient [m_0], which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1 - \left\{1 - \frac{m_0 \cos\theta}{1 + (m_1)^{-1} \times (m_0 \cos\theta)^{m_2}}\right\} \exp(-m_0 \cos\theta)}{1 - \left\{1 - \frac{m_0}{1 + (m_1)^{-1} \times m_0^{m_2}}\right\} \exp(-m_0)} \times \frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 k eV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 k eV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1), provided that the second electron emission coefficient of its surface has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of said two energies satisfying said condition $\delta = 1$ is referred to as a second cross-point energy, the secondary

electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the amplitudes of at least two kinds of unevenness.

48. (Amended) A spacer, wherein the value of the incident angle multiplication coefficient $\underline{m_0}$ of secondary electron emission coefficient [m_0], which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1 - \left\{ 1 - \dfrac{m_0 \cos\theta}{1 + (m_1)^{-1} \times (m_0 \cos\theta)^{m_2}} \right\} \exp(-m_0 \cos\theta)}{1 - \left\{ 1 - \dfrac{m_0}{1 + (m_1)^{-1} \times m_0^{m_2}} \right\} \exp(-m_0)} \times \frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 k eV and incident angle is 0

degree as well as the values measured under the conditions that incident energy is 1 k eV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1), provided that the second electron emission coefficient of its surface has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of said two energies satisfying said condition $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the cycles periods of at least two kinds of unevenness.